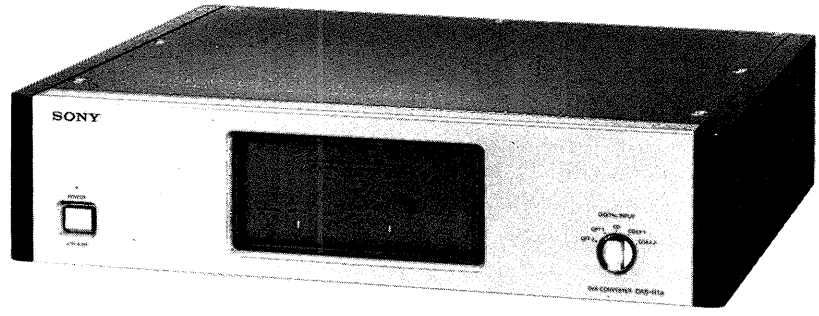
DAS-R1a

SERVICE MANUAL

West Germany Model



SPECIFICATIONS

Input
Digital inputs

Connector	Connector type	Input level	Impedance
COAXIAL 1, 2	phono jack	0.5 Vp-p	75 ohms
OPTICAL 1, 2	optical connector	–18 dBm	Wavelength 660 nm
TWIN LINK	Twin link connector	--	Wavelength 800 nm

Output
Analog outputs

Connector	Connector type	Output level	Impedance
UNBALANCED	phono jack	2.5 V (50 kilohms)	More than 10 kilohms
BALANCED	XLR-3-32 type	2.5 V	More than 600 ohms

Digital audio characteristics

Number of channels	2-channel stereo
Frequency response	2 Hz – 20,000 Hz (±0.5 dB) Sampling frequency of digital signal input: 44.1 kHz
Total harmonic distortion	Less than 0.002% (at 1 kHz, Twin Link mode)
Signal-to-noise ratio	More than 117 dB
Dynamic range	More than 100 dB
Channel separation	More than 110 dB

General

Power requirements	AC 220 – 240 V, 50/60 Hz
Power consumption	19 W
Dimensions	470 x 125 x 410 mm (w/h/d) (18 5/8 x 5 x 16 1/4 inches)
Weight	Approx. 17 kg (37 lb. 8 oz.)

Accessories supplied
Stereo phono plug connecting cable (1)
Coaxial digital connecting cable (1)

Optional component
CD player CDP-R1a

Design and specifications are subject to change without notice.

Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

D/A CONVERTER UNIT

SONY®

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[Note on repair]

1. When replacing IC601, optical power adjustment (RV601) is necessory.
   Replace OPT board with adjusted new one (A-4617-285-A) because special servicing jig is necessory in this adjustment.

2. Be careful not to short output of IC601 to power side or ground side during turning on electricity.
   It causes IC broken.

SECTION 1
GENERAL

[General]

The DAS-R1a is a D/A Converter for use with the CDP-R1a CD Player, as a part of separate-type CD player system.
The DAS-R1a converts the digital signal picked up from the compact disc by the CDP-R1a into an analog (audio) signal.
Using the Twin Link-S system, the clock signal and data signal are transmitted separately between the DAS-R1a and the CDP-R1a.
In addition, the DAS-R1a is designed to accept digital signals from a DBS (Direct Broadcasting Satellite) tuner, a DAT (Digital Audio Tape) deck, etc.

Pulse D/A converter completely free of non-linear distortion, glitches, zero-cross distortion

Conventional D/A converters only produce sound in step-size waves; the waves are rounded through the low-pass filter, and converted to an analog (audio) signal.
The pulse D/A converter of the DAS-R1a sends either a "high" signal (current on) or a "low" signal (current off). Complicated waveforms -music- is expressed by the way in which the pulse density is varied. The pulse D/A converter is theoretically free of the non-linear distortion, glitches, and zero-cross distortion that are unavoidable with conventional D/A converters. It lends a natural, warm character to the music.

High performance LSI with high sampling speed master clock and superior calculation method

The performance of the pulse D/A converter is determined by the pulse frequency and the way in which they are calculated. The LSI adopted in the DAS-R1a achieves a maximum master clock operating frequency of as high as 50 MHz. This is two times higher than that of conventional high-speed C-MOS chips. Pulses are calculated by a unique Sony Extended Noise Shaping method to generate the high-density pulse train.

Cauer-low-pass filter conveys all musical information without delay

The Cauer-low-pass filter instantly conveys all musical information for all bandwidths, with superior quality and ripple accuracy, echo and rejection characteristics.
At the same time, the sound resolution greatly increases with the improved S/N characteristics.

Carefully configured master clock and direct digital sync circuit for jitter-free sound reproduction

The master clock of the crystal oscillator is located almost directly on the pulse D/A converter to provide the purest possible clock signal. Also, a direct sync circuit is provided just ahead of the electronic switch in the last stage of the converter. The sync circuit rearranges the data along with the master clock signal. This ensures crystal-clear, powerful sound reproduction.

Twin Link-S system for improved D/A converter time axis accuracy

The Twin Link-S system adopted in the CDP-R1a and the DAS-R1a improves the time-axis precision, giving completely jitter-free sound reproduction.
The previous Sony separate-type CD player and D/A converter, the CDP-R1 and DAS-R1, set new standards for optical interface with the introduction of the "Twin Link System". In this system, the crystal oscillator is located very near the D/A converter which treats waves with the absolute minimum of distortion. In addition, bidirectional interface lines are provided; one is used to send clock timing information from the converter to the player, and the second is used to send normal data from the player to the converter.
With the development of the logical synchronization circuit and optical devices, the Twin Link-S system provides jitter-free D/A conversion that ensures crystal clear and powerful sound reproduction. The Twin Link-S system and the conventional Twin Link system are interchangeable.

Multiple terminal configurations for system expansion

The DAS-R1a has five digital inputs; one Twin-Link optical input, exclusively used for connection to the CDP-R1a, two coaxial digital inputs, and two optical inputs. Each input can be controlled independently from the front panel.
For analog output, an unbalanced-type pin-jack output and a balanced-type XLR output are provided.

To derive an effective performance from the unit

We recommend that you use the power source directly from the AC wall outlet. If you are obliged to use an extension cord, select the one which has enough current rate and selected conductives.

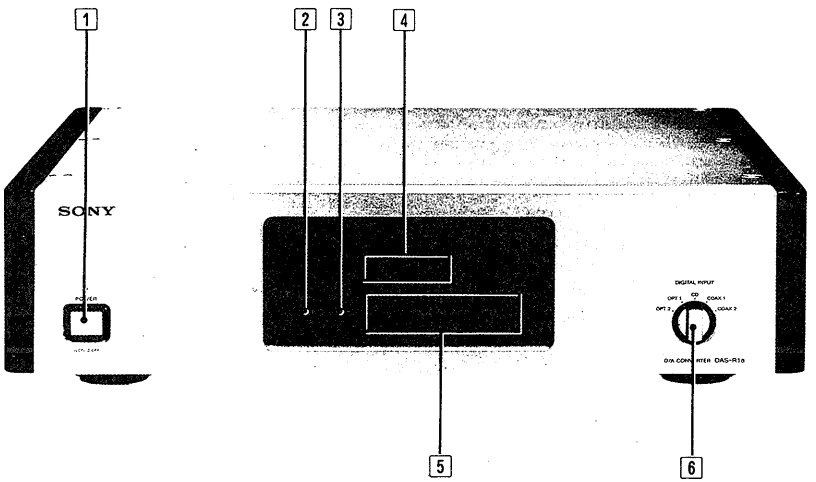
Be sure to get the power source from an AC wall outlet which is separated from one connected to a personal computer, electric carpet or refrigerator. Otherwise, there could be a noise problem.

Although the unit is designed against undesirable vibrations, it should be placed on a stout rack in order to avoid the vibration caused by acoustic pressure from speakers. Place the unit in a location far from a TV, VCR or tuner which may cause noise in the sound or a distortion in the picture. We recommend that you use an outdoor antenna because a room antenna tends to cause distortion.

This section is extracted from instruction manual.

[Location of Controls]

Front Panel



1 POWER switch and indicator
Press to turn on the power. The indicator lights in green. Press again to turn off the power and to turn out the indicator.

2 OPERATING indicator
Lights in orange when the built-in digital interface is locked and the operations are performed correctly.

3 MUTING indicator
Lights in orange when the unit is supplied with the power and is not in operation, with the built-in digital interface unlocked.

4 SAMPLING FREQUENCY indicators
The indicator corresponding to the sampling frequency of the input program source lights in green.

32 kHz: For DBS*-A mode, DAT 32 kHz mode, etc.
44 kHz**: For CD, etc.
48 kHz: For DAT standard mode, etc.

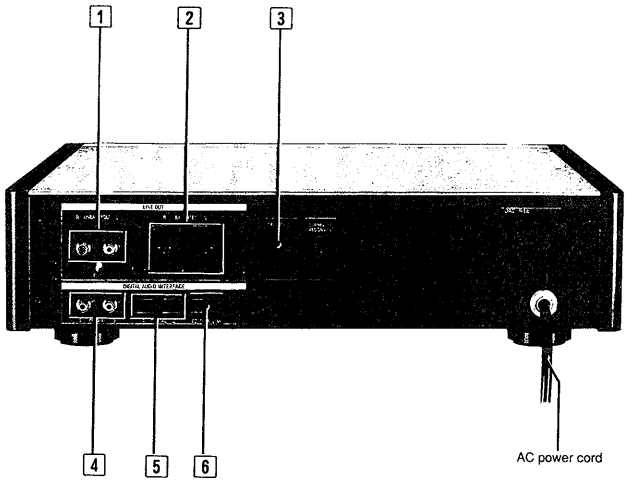
5 DIGITAL INPUT indicators
The indicator corresponding to the source selected by the DIGITAL INPUT selector lights in orange.

6 DIGITAL INPUT selector
Selects the digital input source corresponding to the component connected to the input jacks at rear. Set to the "CD" position when used with the CDP-R1a.

* Stands for "Direct Broadcast Satellite".
The DAS-R1a is designed to accept the digital signals from a DBS tuner which uses PCM (digital) signals. (Only for DBS tuners providing a digital output jack which conforms to the EIAJ-format.)

** The "44 kHz" indicator lights when the sampling frequency of the input digital signal is 44.1 kHz or 44.056 kHz.

Rear Panel



1 LINE OUT (line output)/UNBALANCE jacks (phono jacks)
Connect to the line input jacks (phono jack) of the amplifier using a phono plug connecting cable.

2 LINE OUT (line output)/BALANCED connectors (XLR-3-32 type)
Connect to the line input connectors (XLR-3-31 type) of the amplifier using XLR-3 type connecting cables. This connection is less affected by external noise than the phono plug connection.
Pin assignment (CONNECTION ASSIGNMENT)

1: GROUND
2: HOT (+)
3: COLD (–)

3 BALANCE OUT (balanced line output) ON/OFF selector
Set to the "ON" position when using the balanced line output, and be sure to set to the "OFF" position when using the unbalanced line output.

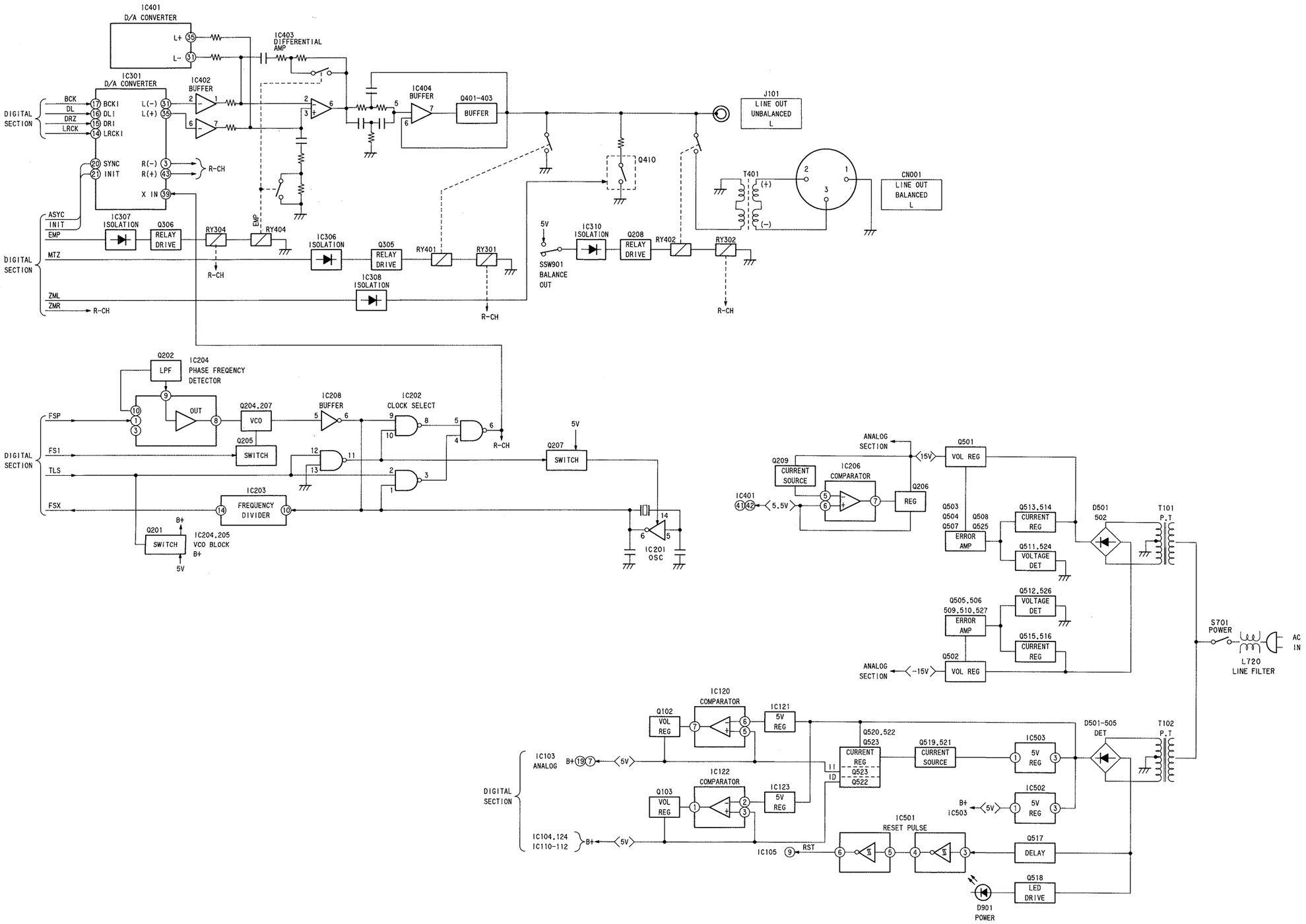
4 DIGITAL AUDIO INTERFACE/COAXIAL 1, 2 input jacks (phono jack)
Connect to the coaxial digital output jacks (conforming to the Digital Audio Interface Format) of a DAT deck or CD player using the coaxial digital cable (supplied).

5 DIGITAL AUDIO INTERFACE OPTICAL 1, 2 input connectors (optical connector)
Connect to the optical output connectors using a optical connecting cable.

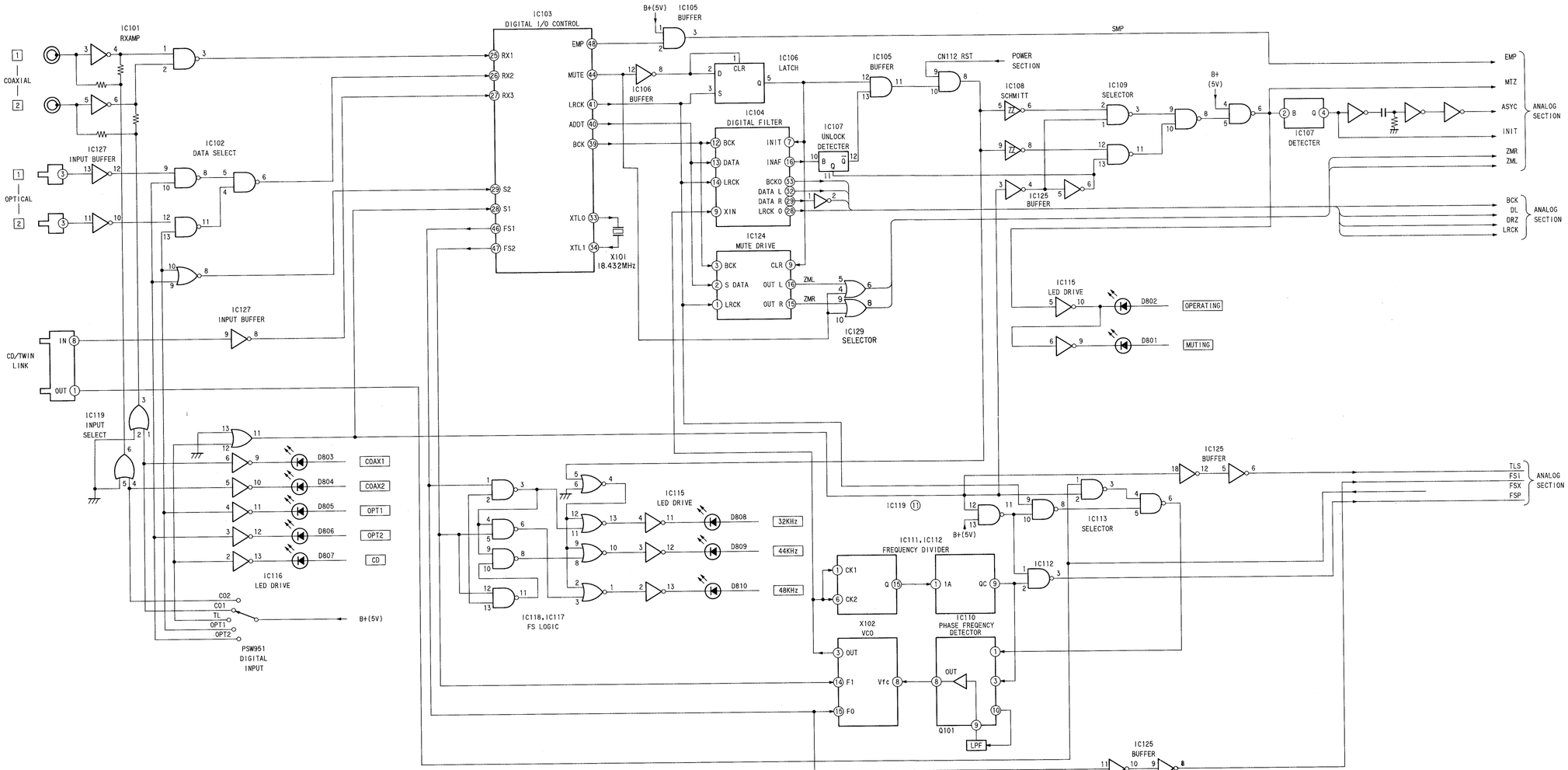
6 DIGITAL AUDIO INTERFACE/CD/TWIN LINK input connector
Connect to the TWIN LINK output connector of the CDP-R1a CD player using the Twin Link optical cable (supplied with the CDP-R1a).

SECTION 2
DIAGRAMS

[Analog/Power Block Diagram]



[Digital Block Diagram]



[Semiconductor Lead Layouts]

CXD2552Q-1

2SB649A

10E2
1SS97-2

SV04

M5F7805L
M5F7805L-720

2SB1013-2
2SC2383
2SC-2878B

1SS120
1SS168
HZS6A1L

U05G

PC817

2SD774-34

EQB01-07

RC78L05A

2SJ76
2SK213

C16P20F
C16P20FR

2SA985A
2SA1383-Q
2SC2275A
2SC3514-Q

2SK241-GR

KV1320

2SA1175-HFE
2SC2785-HFE

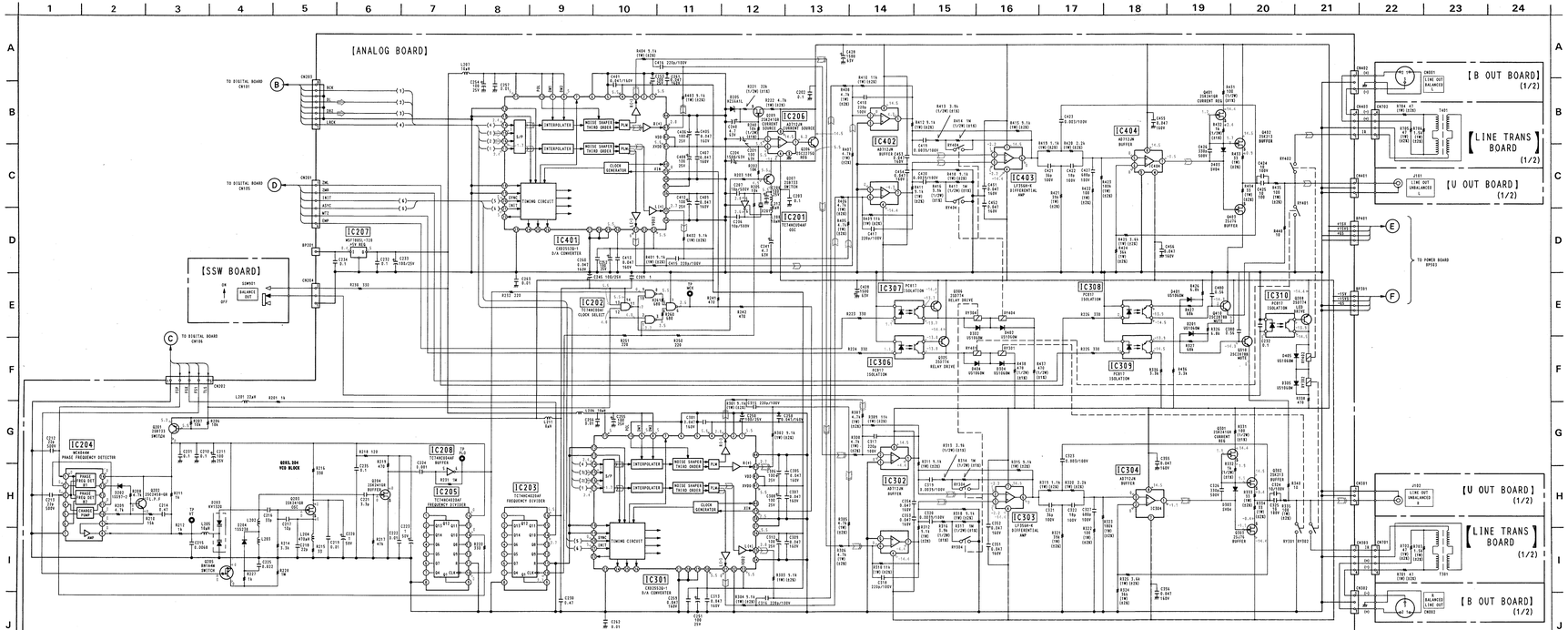
DTA114ES

SEL1810A

SEL2510C-D

[Schematic Diagram] —Analog Block—

●Refer to pages 26 and 27 for Waveformes.



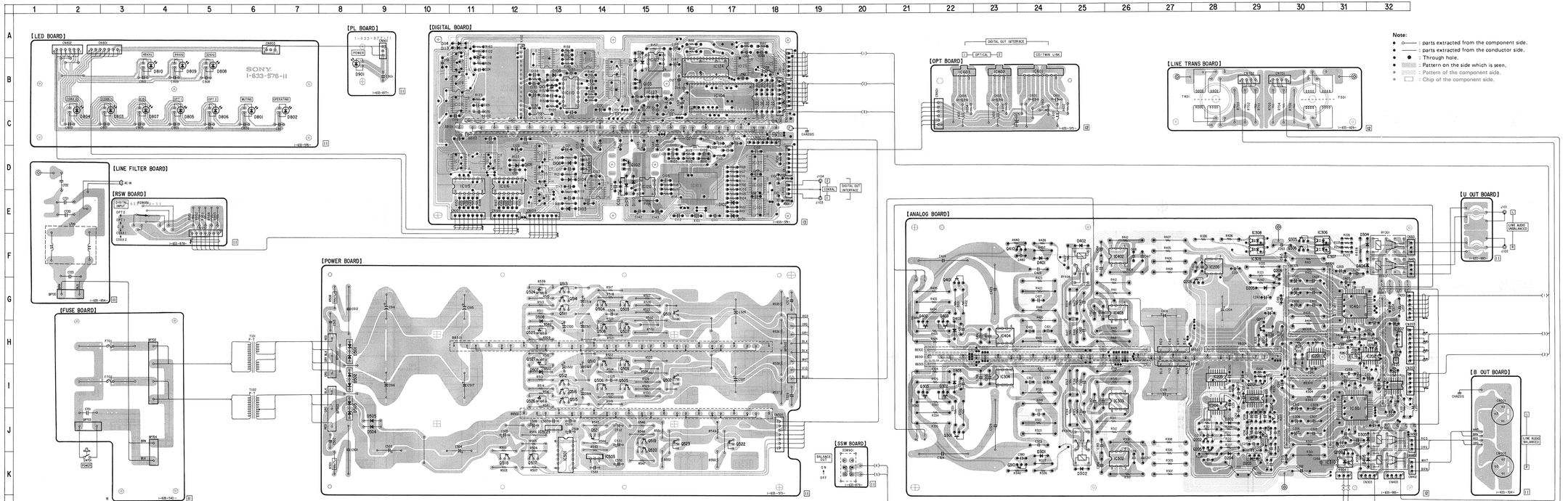
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- B+ bus.
- B− bus.
- : adjustment for repair.
- CD player (CDP-R1a,etc) with digital output is required for measurement of this set.
- Play back any compact disc, receive the digital signal.
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken to ground in playback mode by using oscilloscope.
- : CD signal pass
  : L-CH signal pass
  : R-CH signal pass

[Semiconductor Location]

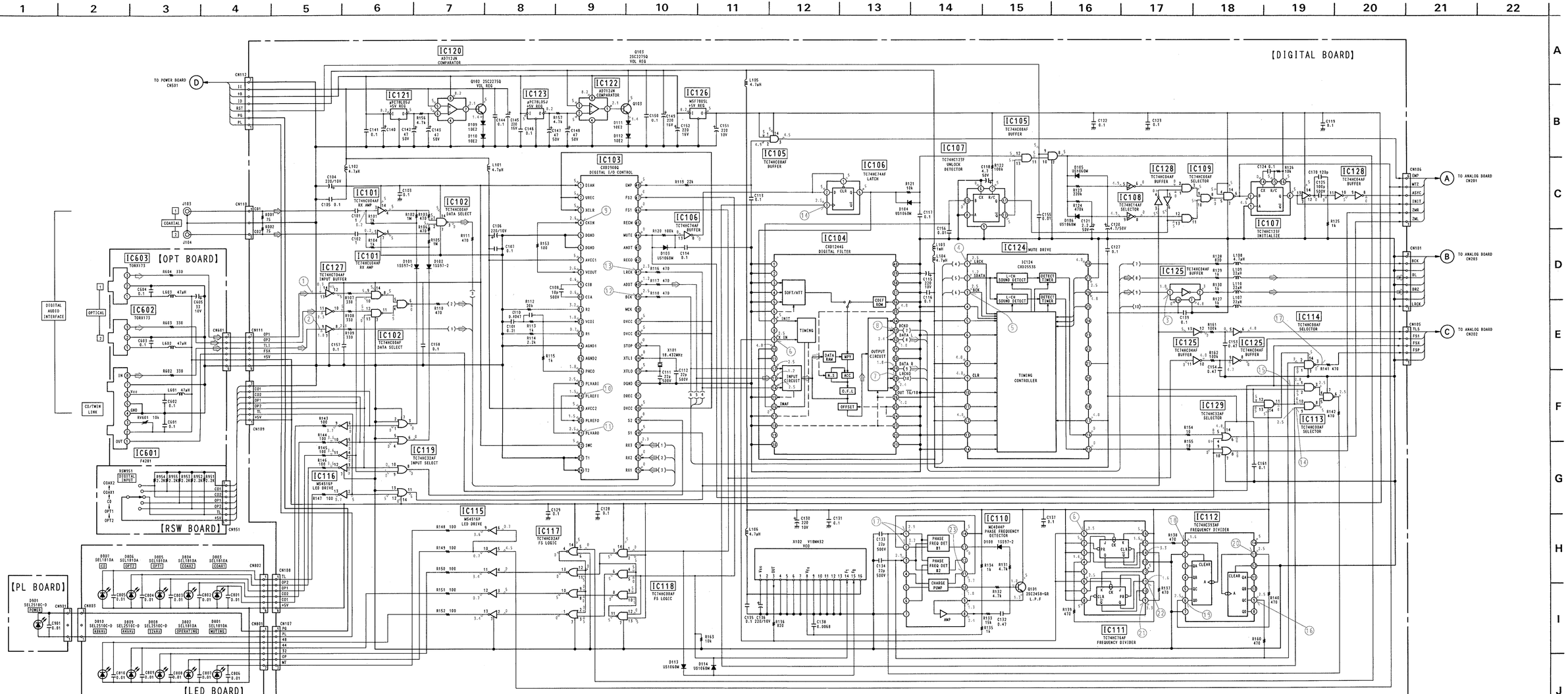
Ref. No.	Location	Ref. No.	Location
D101	E-17	IC202	H-32
D102	E-17	IC203	I-32
D103	E-13	IC204	I-28
D104	D-14	IC205	I-28
D105	D-12	IC206	F-28
D106	D-13	IC207	H-32
D108	B-13	IC208	I-29
D109	E-15	IC301	I-31
D110	E-15	IC302	K-26
D111	B-15	IC303	I-26
D112	B-15	IC304	I-23
D113	A-10	IC306	F-31
D114	A-10	IC307	F-31
D202	J-28	IC308	F-29
D203	K-29	IC309	F-29
D204	K-28	IC310	K-31
D205	G-29	IC401	G-31
D301	K-24	IC402	F-26
D302	K-25	IC403	G-26
D303	I-22	IC404	H-23
D304	F-32	IC501	K-13
D305	J-32	IC502	J-13
D401	F-24	IC503	K-14
D402	F-25	IC601	B-24
D403	H-22	IC602	B-23
D404	F-32	IC603	B-22
D405	K-32		
D501	H-8	Q101	B-13
D502	I-8	Q102	D-15
D503	I-8	Q103	B-15
D504	J-9	Q201	I-29
D505	J-9	Q202	J-28
D507	I-13	Q203	J-29
D508	G-13	Q204	J-29
D801	C-6	Q205	J-28
D802	C-7	Q206	G-28
D803	C-3	Q207	H-29
D804	C-2	Q208	J-31
D805	C-4	Q209	F-30
D806	C-5	Q301	J-22
D807	C-4	Q302	I-22
D808	B-5	Q303	I-21
D809	B-4	Q305	F-30
D810	B-4	Q306	F-30
D901	B-8	Q310	K-24
		Q401	G-22
IC101	E-18	Q402	H-21
IC102	D-18	Q403	H-22
IC103	D-16	Q410	F-24
IC104	B-17	Q501	G-16
IC105	D-13	Q502	I-16
IC106	D-14	Q503	G-15
IC107	B-11	Q504	G-14
IC108	D-13	Q505	I-15
IC109	B-11	Q506	I-14
IC110	B-13	Q507	H-15
IC111	A-13	Q508	H-14
IC112	B-14	Q509	I-15
IC113	B-14	Q510	I-14
IC114	B-14	Q511	G-13
IC115	D-11	Q512	I-13
IC116	D-12	Q513	G-13
IC117	D-11	Q514	G-13
IC118	D-11	Q515	I-13
IC119	E-13	Q516	I-13
IC120	D-15	Q517	K-12
IC121	E-14	Q518	K-12
IC122	B-15	Q519	J-15
IC123	B-15	Q520	J-15
IC124	B-17	Q521	J-14
IC125	B-18	Q522	J-17
IC126	D-14	Q523	J-16
IC127	D-18	Q524	G-13
IC128	C-11	Q525	H-12
IC129	B-17	Q526	I-12
IC201	H-30	Q527	H-12

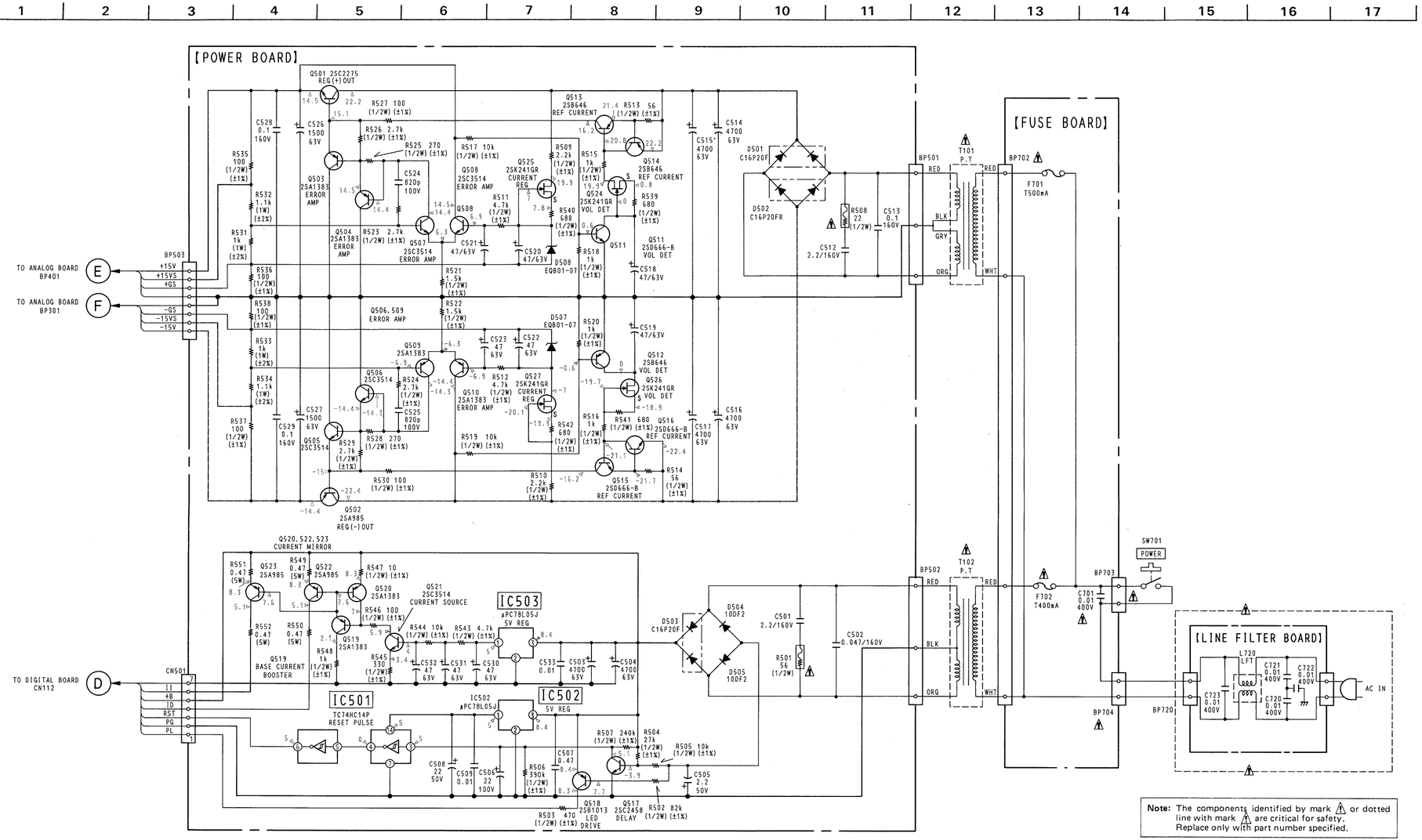
[Printed Wiring Board] ● Refer to page 11 for Semiconductor Lead Layouts.



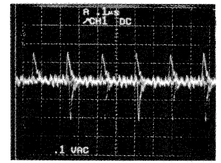
[Schematic Diagram] —Digital Block—

- Refer to page 15 for Notes.
- Refer to pages 26 and 27 for Waveforms.

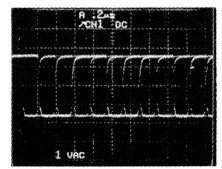




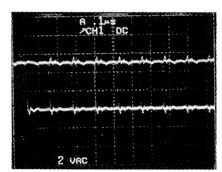
[Waveforms]



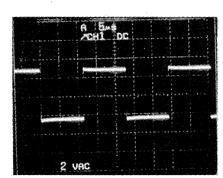
① IC127⑪pin
0.38Vp-p



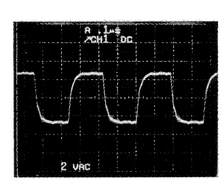
② IC127⑨pin
3.2Vp-p



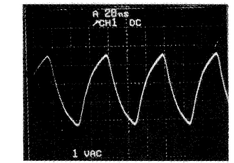
③ IC125①pin
6.3Vp-p



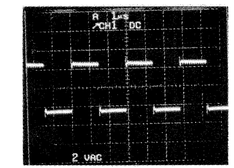
④ IC124①pin
5.5Vp-p
44kHz



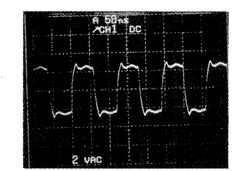
⑤ IC124③pin
5.5Vp-p
2.7MHz



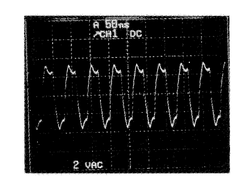
⑥ IC104⑨pin
4Vp-p
16.4MHz



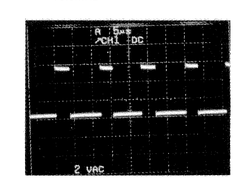
⑦ IC104㉘pin
6.5Vp-p
0.34MHz



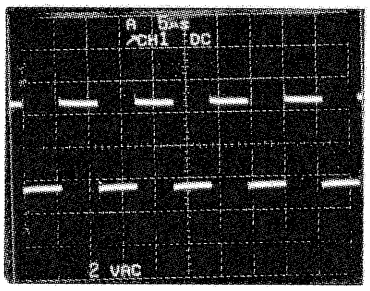
⑧ IC104㉓pin
5.6Vp-p
8.3MHz



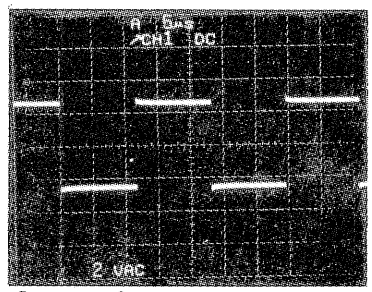
⑨ IC103④pin
6.4Vp-p
16.6MHz



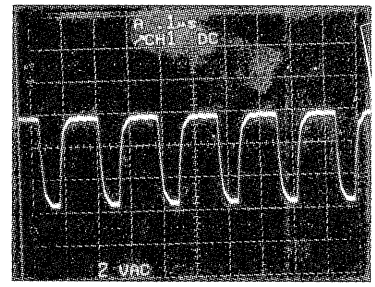
⑩ IC103⑱, ⑳pin
7Vp-p
84kHz



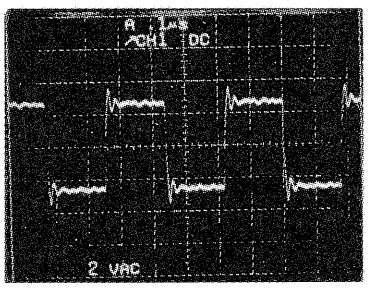
⑪ IC103⑰, ㉑pin
6.6Vp-p
88kHz



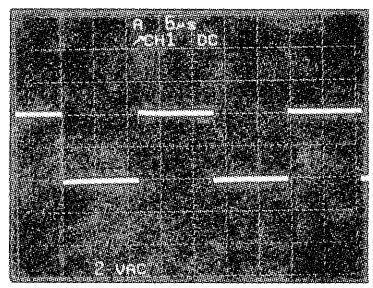
⑯ IC112⑨pin
6Vp-p
44kHz



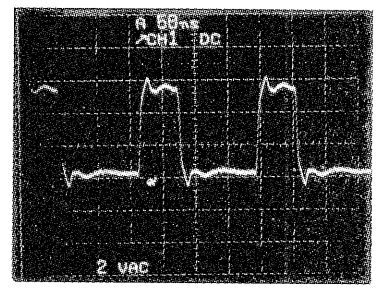
㉑ IC111⑨pin
5.4Vp-p
5.5MHz



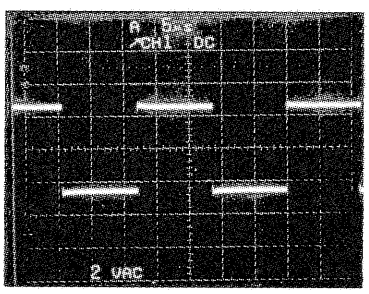
⑫ IC103㊴pin
6.5Vp-p
2.7MHz



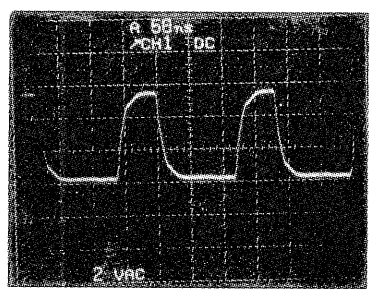
⑰ IC110①, ③pin
IC114②pin
4Vp-p
44kHz



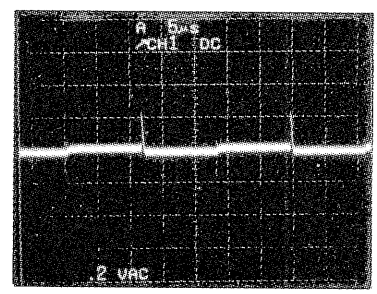
㉒ IC111⑪pin
7Vp-p
5.5MHz



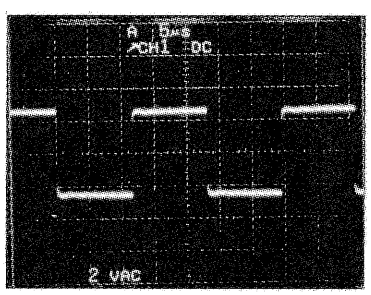
⑬ IC103㊶pin
5.5Vp-p
44kHz



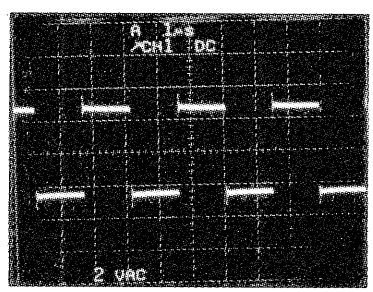
⑱ IC112①pin
5.2Vp-p
5.5MHz



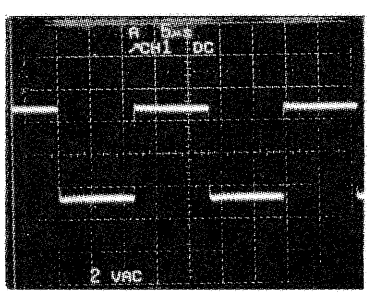
㉓ IC110②, ⑪pin
0.5Vp-p



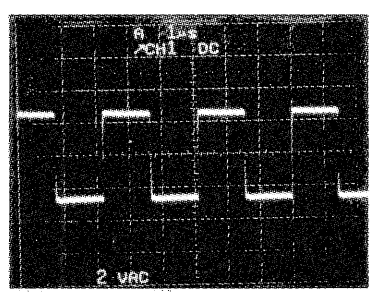
⑭ IC106③pin, IC113⑨pin
5Vp-p
44kHz



⑲ IC112⑥pin
6.5Vp-p
0.34MHz



⑮ IC113①pin
6Vp-p
44kHz



⑳ IC112⑬pin
5.4Vp-p
0.34MHz

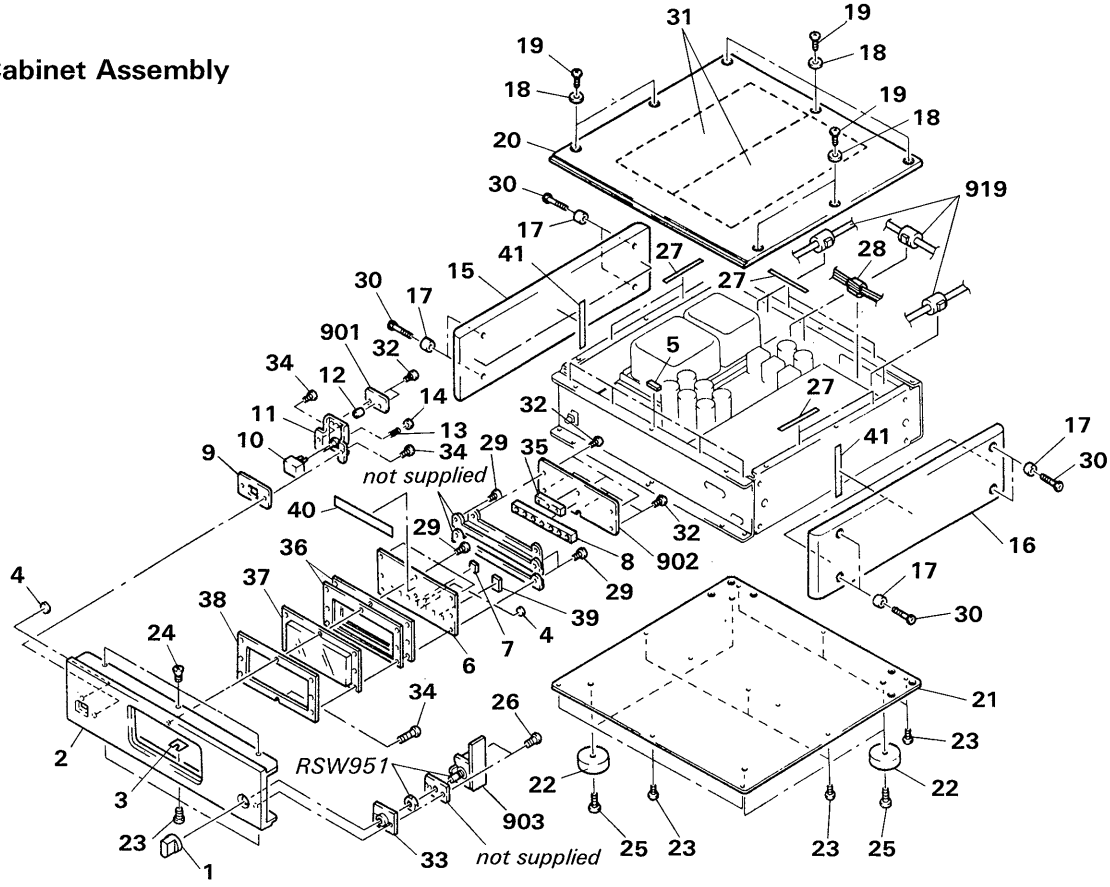
SECTION 3
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) ... KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color

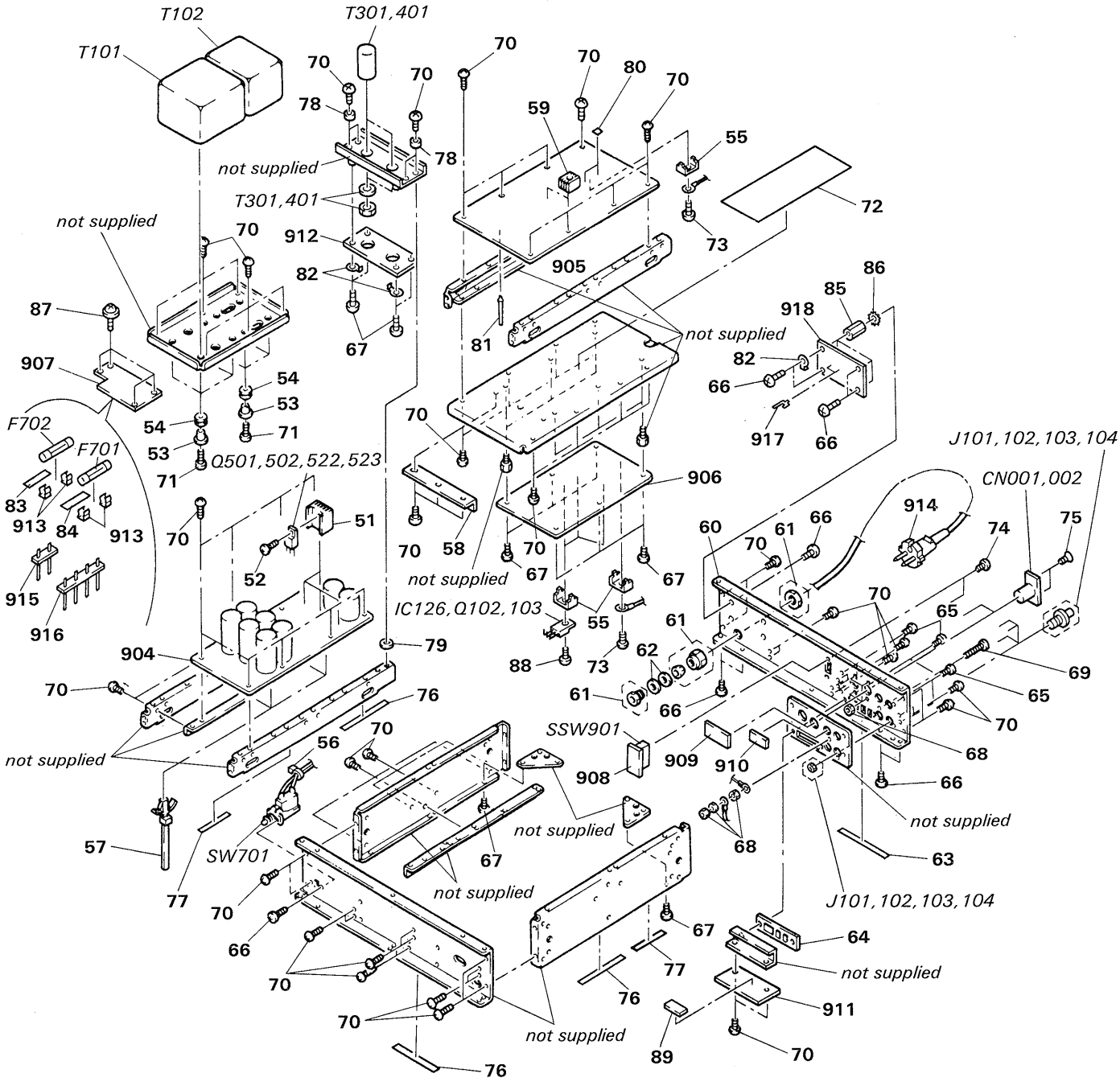
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

3-1. Cabinet Assembly



No.	Part No.	Description	Remarks
1	4-924-256-01	KNOB (B)	
2	4-936-349-01	PANEL, FRONT	
3	3-544-028-11	SPACER	
4	4-924-233-01	INDICATOR	
5	9-911-840-XX	CUSHION, RUBBER	
6	4-936-342-01	PLATE (E), ORNAMENTAL	
7	4-936-339-01	INDICATOR	
8	*4-924-254-01	HOLDER (B), LED	
9	4-924-245-01	PLATE (E), ORNAMENTAL	
10	X-4924-201-1	KNOB (A) ASSY	
11	*X-4924-202-1	BRACKET (E) ASSY	
12	*4-924-218-01	HOLDER (A), LED	
13	*4-880-426-00	SPRING, COMPRESSION	
14	4-862-338-00	RING, STOPPER	
15	4-924-239-01	PLATE (LEFT), SIDE, ORNAMENTAL	
16	4-924-240-01	PLATE (RIGHT), SIDE, ORNAMENTAL	
17	4-924-241-01	ESCUTCHEON (B)	
18	4-924-237-01	ESCUTCHEON (A)	
19	4-924-242-01	SCREW (M3X6), FLAT HEAD	
20	4-924-236-12	PANEL	
21	*4-924-238-11	PLATE, BOTTOM	
22	X-4924-207-1	FOOT ASSY	
23	3-703-685-21	SCREW (+BV 3X8)	
24	7-682-246-04	SCREW +K 3X5	
25	7-682-566-09	SCREW +B 4X20	
26	7-682-548-09	SCREW +B 3X8	
27	3-831-441-11	CUSHION	
28	1-543-140-00	CORE, RING	
29	7-682-550-09	SCREW +B 3X12	
30	7-683-425-04	BOLT, HEXAGON SOCKET 4X20	
31	*4-924-265-01	ABSORBENT (A), ACOUSTIC	
32	7-685-870-09	SCREW +BVTT 3X5 (S)	
33	4-936-334-01	PLATE (K), ORNAMENTAL	
34	7-682-546-09	SCREW +B 3X5	
35	*4-936-336-01	HOLDER (D), LED	
36	4-936-345-01	SPACER (G)	
37	4-936-343-01	WINDOW (G)	
38	4-936-346-01	PLATE (G), ORNAMENTAL	
39	*4-936-354-01	PLATE, LIGHT INTERCEPTION	
40	*4-924-272-01	ABSORBENT (C), ACOUSTIC	
41	9-911-835-XX	CUSHION, F	
901	*1-633-877-11	PC BOARD, PL	
902	*1-633-576-11	PC BOARD, LED	
903	*1-633-878-11	PC BOARD, RSW	
919	1-543-619-41	CORE, RING	
RSW951	1-572-187-11	SWITCH, ROTARY (DIGITAL INPUT)	

3-2. Chassis Assembly



No.	Part No.	Description	Remarks
51	*4-921-402-01	HEAT SINK	
52	7-682-148-15	SCREW, TR	
53	4-924-211-01	COLLAR	
54	4-936-305-01	BUSHING	
55	4-924-264-01	TERMINAL, MOUNT	
56	3-704-208-01	BAND, BINDING	
57	3-655-653-21	BAND (TAITON), BINDING	
58	*4-924-274-01	REINFORCEMENT	
59	2-269-798-01	HEAT SINK, TO-39	
60	*4-941-263-02	PANEL (F), BACK	
61 ⚠	*X-4885-924-1	BUSHING ASSY, CORD	
62	4-916-726-01	WASHER	
63	3-831-441-11	CUSHION	
64	*4-936-340-01	PLATE (T), ORNAMENTAL	
65	3-703-685-21	SCREW (+BV 3X8)	
66	7-682-547-09	SCREW +B 3X6	
67	7-682-546-09	SCREW +B 3X5	
68	7-684-023-04	N 3, TYPE 2	
69	7-682-550-09	SCREW +B 3X12	
70	7-682-548-09	SCREW (3X8)	
71	7-682-563-09	SCREW +B 4X12	
72	*4-924-271-01	ABSORBENT (B), ACOUSTIC	
73	7-682-148-15	SCREW, TR	
74	7-621-775-20	SCREW +B 2.6X5	
75	7-682-249-04	SCREW +K 3X10	
76	3-831-441-11	SPACER (10X160X0.5)	
77	3-645-258-00	CLOTH, GUIDE, C	
78	2-371-561-00	BUSHING (P), INSULATING	
79	*3-655-862-11	SPACER, INSULATING	
80	9-911-863-XX	SPACER	
81	*3-683-631-01	CLAMP	
82	4-870-539-00	PLATE, GROUND	
83	*3-701-948-10	LABEL (T400MA), FUSE	

No.	Part No.	Description	Remarks
84	*3-701-947-08	LABEL (T500MA), FUSE	
85	*4-924-280-01	BOSS (E)	
86	7-623-308-07	LW 3, TYPE (A)	
87	X-4908-910-1	SCREW ASSY (+ BVTT)	
88	7-682-147-15	SCREW, TR	
89	9-911-815-02	CUSHION, BATTERY LID	
904	*A-4617-288-A	MOUNTED PCB, POWER	51,52
905	*A-4617-542-A	MOUNTED PCB, ANALOG	55,59,80,81
906	*A-4617-672-A	MOUNTED PCB, DIGITAL	52,55
907	*1-628-540-11	PC BOARD, FUSE	
908	*1-633-879-11	PC BOARD, SSW	
909	*1-633-704-11	PC BOARD, (B) OUT	
910	*1-633-880-11	PC BOARD, U-OUT	
911	*A-4617-285-A	MOUNTED PCB, OPT	
912	*1-633-629-11	PC BOARD, LINE TRANSFORMER	
913	1-533-183-11	HOLDER, FUSE	
914 ⚠	1-559-271-11	CORD, POWER	
915	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P	
916	*1-535-141-00	BASE POST 22MM (10MM PITCH) 4P	
917	1-535-476-11	TERMINAL	
918	*1-635-954-11	PC BOARD, LINE FILTER	
CN001	1-569-256-11	CONNECTOR (RECEPTACLE)(BALANCE OUT L)	
CN002	1-569-256-11	CONNECTOR (RECEPTACLE)(BALANCE OUT R)	
F701 ⚠	1-532-279-00	FUSE, TIME-LAG (T500MA)	
F702 ⚠	1-532-066-00	FUSE, TIME-LAG (T400MA)	
J101	1-568-918-41	JACK, PIN 1P (LINE OUT L)	
J102	1-568-918-31	JACK, PIN 1P (LINE OUT R)	
J103	1-568-918-21	JACK, PIN 1P (COAXIAL 1)	
J104	1-568-918-21	JACK, PIN 1P (COAXIAL 2)	
SSW901	1-571-083-31	SWITCH, SLIDE (BALANCE OUT)	
SW701 ⚠	1-554-538-00	SWITCH, PUSH (AC POWER)(1 KEY)	
T101 ⚠	1-449-427-11	TRANSFORMER, POWER	
T102 ⚠	1-450-196-11	TRANSFORMER, POWER	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*1-633-877-11	PC BOARD, PL			
902	*1-633-576-11	PC BOARD, LED			
903	*1-633-878-11	PC BOARD, RSW			
904	*A-4617-288-A	MOUNTED PCB, POWER	51,52		
905	*A-4617-542-A	MOUNTED PCB, ANALOG	55,59,80,81		
906	*A-4617-672-A	MOUNTED PCB, DIGITAL	52,55		
907	*1-628-540-11	PC BOARD, FUSE			
908	*1-633-879-11	PC BOARD, SSW			
909	*1-633-704-11	PC BOARD, (B) OUT			
910	*1-633-880-11	PC BOARD, U-OUT			
911	*A-4617-285-A	MOUNTED PCB, OPT			
912	*1-633-629-11	PC BOARD, LINE TRANSFORMER			
913	1-533-183-11	HOLDER, FUSE			
914	⚠1-559-271-11	CORD, POWER			
915	1-535-139-00	BASE POST 22MM (10MM PITCH) 2P			
916	*1-535-141-00	BASE POST 22MM (10MM PITCH) 4P			
917	1-535-476-11	TERMINAL			
918	*1-635-954-11	PC BOARD, LINE FILTER			
919	1-543-619-41	CORE, RING			
BB101	1-565-062-11	BAR, BUS			
BB102	*1-569-237-11	BAR, BUS 8P			
BB103	*1-569-237-11	BAR, BUS 8P			
BB301	1-565-063-11	BAR, BUS			
BB302	*1-569-236-11	BAR, BUS 6P			
BB303	*1-569-236-11	BAR, BUS 6P			
BB304	*4-913-106-01	REINFORCEMENT (C), PWB			
BB305	*1-569-235-11	BAR, BUS 5P			
BB306	*1-566-940-11	BUS BAR 6P			
BB307	*1-580-302-11	BAR, BUS 4P			
BB308	*1-569-137-11	BUS BAR 2P			
BB309	*1-569-137-11	BUS BAR 2P			
BB501	1-565-062-11	BAR, BUS			
BB502	1-569-360-11	BAR, BUS			
BP201	*1-535-114-00	TERMINAL			
BP301	*1-535-117-00	TERMINAL			
BP401	*1-535-117-00	TERMINAL			
BP501	*1-535-140-00	BASE POST 22MM (10MM PITCH) 3P			
BP502	*1-535-140-00	BASE POST 22MM (10MM PITCH) 3P			
BP503	*1-535-121-00	TERMINAL			
BP720	*1-535-139-00	BASE POST 19MM (10MM PITCH) 2P			
C101	1-136-177-00	FILM	1MF	5%	50V
C102	1-136-177-00	FILM	1MF	5%	50V
C103	1-162-179-11	CERAMIC	0.1MF		50V
C104	1-124-024-00	ELECT	220MF	20%	10V
C105	1-162-179-11	CERAMIC	0.1MF		50V
C106	1-124-024-00	ELECT	220MF	20%	10V
C107	1-162-179-11	CERAMIC	0.1MF		50V
C108	1-107-202-00	MICA	10PF	0.5PF	500V
C109	1-136-169-00	FILM	0.22MF	5%	50V
C110	1-106-359-00	MYLAR	0.0047MF	5%	50V
C111	1-107-210-00	MICA	22PF	5%	500V
C112	1-107-210-00	MICA	22PF	5%	500V
C113	1-136-165-00	FILM	0.1MF	5%	50V
C114	1-136-165-00	FILM	0.1MF	5%	50V
C115	1-124-024-00	ELECT	220MF	20%	10V
C116	1-162-179-11	CERAMIC	0.1MF		50V
C117	1-136-165-00	FILM	0.1MF	5%	50V
C118	1-126-058-11	ELECT	4.7MF	20%	50V
C119	1-162-179-11	CERAMIC	0.1MF		50V
C120	1-126-058-11	ELECT	4.7MF	20%	50V
C121	1-126-045-11	ELECT	2.2MF	20%	50V
C122	1-162-179-11	CERAMIC	0.1MF		50V
C123	1-162-179-11	CERAMIC	0.1MF		50V
C124	1-136-165-00	FILM	0.1MF	5%	50V
C125	1-107-169-00	MICA	100PF	5%	500V
C127	1-162-179-11	CERAMIC	0.1MF		50V
C128	1-162-179-11	CERAMIC	0.1MF		50V
C129	1-162-179-11	CERAMIC	0.1MF		50V
C130	1-124-024-00	ELECT	220MF	20%	10V
C131	1-162-179-11	CERAMIC	0.1MF		50V
C132	1-136-173-00	FILM	0.47MF	5%	50V
C133	1-107-210-00	MICA	22PF	5%	500V
C134	1-107-210-00	MICA	22PF	5%	500V
C135	1-162-179-11	CERAMIC	0.1MF		50V
C136	1-124-024-00	ELECT	220MF	20%	10V
C137	1-162-179-11	CERAMIC	0.1MF		50V
C138	1-130-481-00	MYLAR	0.0068MF	5%	50V
C139	1-162-179-11	CERAMIC	0.1MF		50V
C140	1-126-024-11	ELECT	220MF	20%	16V
C141	1-162-179-11	CERAMIC	0.1MF		50V
C142	1-126-051-11	ELECT	47MF	20%	50V
C143	1-126-051-11	ELECT	47MF	20%	50V
C144	1-162-179-11	CERAMIC	0.1MF		50V
C145	1-126-024-11	ELECT	220MF	20%	16V
C146	1-162-179-11	CERAMIC	0.1MF		50V
C147	1-126-051-11	ELECT	47MF	20%	50V
C148	1-126-051-11	ELECT	47MF	20%	50V
C149	1-126-024-11	ELECT	220MF	20%	16V
C150	1-162-179-11	CERAMIC	0.1MF		50V
C151	1-124-024-00	ELECT	220MF	20%	10V
C152	1-126-024-11	ELECT	220MF	20%	16V

Ref.No.	Part No.	Description			
C153	1-136-173-00	FILM	0.47MF	5%	50V
C154	1-136-173-00	FILM	0.47MF	5%	50V
C155	1-162-306-11	CERAMIC	0.01MF	20%	16V
C156	1-162-306-11	CERAMIC	0.01MF	20%	16V
C157	1-162-179-11	CERAMIC	0.1MF		50V
C158	1-162-179-11	CERAMIC	0.1MF		50V
C161	1-162-179-11	CERAMIC	0.1MF		50V
C170	1-162-283-31	CERAMIC	120PF	10%	50V
C201	1-124-130-00	ELECT	100MF	20%	63V
C202	1-136-165-00	FILM	0.1MF	5%	50V
C203	1-136-165-00	FILM	0.1MF	5%	50V
C204	1-125-605-11	ELECT	1500MF	20%	63V
C206	1-107-202-00	MICA	10PF	0.5PF	500V
C207	1-107-202-00	MICA	10PF	0.5PF	500V
C208	1-126-052-11	ELECT	100MF	20%	25V
C209	1-136-177-00	FILM	1MF	5%	50V
C210	1-162-179-11	CERAMIC	0.1MF		50V
C211	1-126-052-11	ELECT	100MF	20%	25V
C212	1-107-210-00	MICA	22PF	5%	500V
C213	1-107-210-00	MICA	22PF	5%	500V
C214	1-136-173-00	FILM	0.47MF	5%	50V
C215	1-130-481-00	MYLAR	0.0068MF	5%	50V
C216	1-162-211-31	CERAMIC	33PF	5%	50V
C217	1-162-199-31	CERAMIC	10PF	5%	50V
C218	1-162-207-31	CERAMIC	22PF	5%	50V
C219	1-136-153-00	FILM	0.01MF	5%	50V
C220	1-131-450-00	TANTALUM	1MF	20%	50V
C221	1-162-193-31	CERAMIC	3.3PF	10%	50V
C222	1-136-153-00	FILM	0.01MF	5%	50V
C223	1-131-450-00	TANTALUM	1MF	20%	50V
C224	1-130-471-00	MYLAR	0.001MF	5%	50V
C225	1-136-157-00	FILM	0.022MF	5%	50V
C230	1-136-173-00	FILM	0.47MF	5%	50V
C231	1-162-179-11	CERAMIC	0.1MF		50V
C232	1-162-179-11	CERAMIC	0.1MF		50V
C233	1-126-052-11	ELECT	100MF	20%	25V
C234	1-136-165-00	FILM	0.1MF	5%	50V
C235	1-162-179-11	CERAMIC	0.1MF		50V
C240	1-123-369-00	ELECT	4.7MF	20%	63V
C241	1-123-369-00	ELECT	4.7MF	20%	63V
C245	1-126-023-11	ELECT	100MF	20%	25V
C250	1-126-023-11	ELECT	100MF	20%	25V
C251	1-126-023-11	ELECT	100MF	20%	25V
C252	1-126-023-11	ELECT	100MF	20%	25V
C253	1-126-023-11	ELECT	100MF	20%	25V
C254	1-126-023-11	ELECT	100MF	20%	25V
C255	1-126-023-11	ELECT	100MF	20%	25V
C256	1-136-153-00	FILM	0.01MF	5%	50V
C257	1-136-153-00	FILM	0.01MF	5%	50V
C258	1-136-961-11	FILM	0.047MF	10%	160V
C259	1-136-961-11	FILM	0.047MF	10%	160V
C260	1-136-961-11	FILM	0.047MF	10%	160V
C261	1-136-961-11	FILM	0.047MF	10%	160V
C262	1-162-306-11	CERAMIC	0.01MF	20%	16V
C263	1-162-306-11	CERAMIC	0.01MF	20%	16V
C301	1-136-961-11	FILM	0.047MF	10%	160V
C305	1-136-961-11	FILM	0.047MF	10%	160V

Ref.No.	Part No.	Description			
C306	1-126-023-11	ELECT	100MF	20%	25V
C307	1-136-961-11	FILM	0.047MF	10%	160V
C308	1-126-023-11	ELECT	100MF	20%	25V
C309	1-136-961-11	FILM	0.047MF	10%	160V
C310	1-126-023-11	ELECT	100MF	20%	25V
C313	1-136-961-11	FILM	0.047MF	10%	160V
C315	1-109-542-00	MICA	220PF	2%	100V
C316	1-109-542-00	MICA	220PF	2%	100V
C317	1-136-810-11	FILM	220PF	5%	100V
C318	1-136-810-11	FILM	220PF	5%	100V
C319	1-107-324-00	MICA	0.0039MF	2%	100V
C320	1-107-324-00	MICA	0.0039MF	2%	100V
C321	1-107-074-00	MICA	36PF	2%	100V
C322	1-107-208-00	MICA	18PF	2%	100V
C323	1-107-344-11	MICA	3000PF	2%	100V
C324	1-136-764-11	FILM	10MF	10%	100V
C325	1-136-764-11	FILM	10MF	10%	100V
C326	1-109-631-00	MICA	330PF	2%	500V
C327	1-109-557-00	MICA	680PF	2%	100V
C328	1-125-605-11	ELECT	1500MF	20%	63V
C351	1-136-961-11	FILM	0.047MF	10%	160V
C352	1-136-961-11	FILM	0.047MF	10%	160V
C353	1-136-961-11	FILM	0.047MF	10%	160V
C354	1-136-961-11	FILM	0.047MF	10%	160V
C355	1-136-961-11	FILM	0.047MF	10%	160V
C356	1-136-961-11	FILM	0.047MF	10%	160V
C380	1-136-174-00	FILM	0.56MF	5%	50V
C401	1-136-961-11	FILM	0.047MF	10%	160V
C405	1-136-961-11	FILM	0.047MF	10%	160V
C406	1-126-023-11	ELECT	100MF	20%	25V
C407	1-136-961-11	FILM	0.047MF	10%	160V
C408	1-126-023-11	ELECT	100MF	20%	25V
C409	1-136-961-11	FILM	0.047MF	10%	160V
C410	1-126-023-11	ELECT	100MF	20%	25V
C413	1-136-961-11	FILM	0.047MF	10%	160V
C415	1-109-542-00	MICA	220PF	2%	100V
C416	1-109-542-00	MICA	220PF	2%	100V
C417	1-136-810-11	FILM	220PF	5%	100V
C418	1-136-810-11	FILM	220PF	5%	100V
C419	1-107-324-00	MICA	0.0039MF	2%	100V
C420	1-107-324-00	MICA	0.0039MF	2%	100V
C421	1-107-074-00	MICA	36PF	2%	100V
C422	1-107-208-00	MICA	18PF	2%	100V
C423	1-107-344-11	MICA	3000PF	2%	100V
C424	1-136-764-11	FILM	10MF	10%	100V
C425	1-136-764-11	FILM	10MF	10%	100V
C426	1-109-631-00	MICA	330PF	2%	500V
C427	1-109-557-00	MICA	680PF	2%	100V
C428	1-125-605-11	ELECT	1500MF	20%	63V
C451	1-136-961-11	FILM	0.047MF	10%	160V
C452	1-136-961-11	FILM	0.047MF	10%	160V
C453	1-136-961-11	FILM	0.047MF	10%	160V
C454	1-136-961-11	FILM	0.047MF	10%	160V
C455	1-136-961-11	FILM	0.047MF	10%	160V
C456	1-136-961-11	FILM	0.047MF	10%	160V
C480	1-136-174-00	FILM	0.56MF	5%	50V
C501	1-136-880-11	FILM	2.2MF	10%	160V

Ref.No.	Part No.	Description			
C502	1-136-961-11	FILM	0.047MF	10%	160V
C503	1-125-598-11	ELECT	4700MF	20%	63V
C504	1-125-598-11	ELECT	4700MF	20%	63V
C505	1-126-045-11	ELECT	2.2MF	20%	50V
C506	1-126-736-11	ELECT	22MF	20%	100V
C507	1-136-173-00	FILM	0.47MF	5%	50V
C508	1-126-060-11	ELECT	22MF	20%	50V
C509	1-136-153-00	FILM	0.01MF	5%	50V
C512	1-136-880-11	FILM	2.2MF	10%	160V
C513	1-136-960-11	FILM	0.1MF	10%	160V
C514	1-125-604-11	ELECT	4700MF	20%	63V
C515	1-125-604-11	ELECT	4700MF	20%	63V
C516	1-125-604-11	ELECT	4700MF	20%	63V
C517	1-125-604-11	ELECT	4700MF	20%	63V
C518	1-126-051-11	ELECT	47MF	20%	63V
C519	1-126-051-11	ELECT	47MF	20%	63V
C520	1-124-918-11	ELECT	47MF	20%	63V
C521	1-124-918-11	ELECT	47MF	20%	63V
C522	1-124-918-11	ELECT	47MF	20%	63V
C523	1-124-918-11	ELECT	47MF	20%	63V
C524	1-109-559-00	MICA	820PF	2%	100V
C525	1-109-559-00	MICA	820PF	2%	100V
C526	1-125-605-11	ELECT	1500MF	20%	63V
C527	1-125-605-11	ELECT	1500MF	20%	63V
C528	1-136-960-11	FILM	0.1MF	10%	160V
C529	1-136-960-11	FILM	0.1MF	10%	160V
C530	1-126-051-11	ELECT	47MF	20%	63V
C531	1-126-051-11	ELECT	47MF	20%	63V
C532	1-126-051-11	ELECT	47MF	20%	63V
C533	1-136-153-00	FILM	0.01MF	5%	50V
C601	1-162-179-11	CERAMIC	0.1MF		50V
C602	1-162-179-11	CERAMIC	0.1MF		50V
C603	1-162-179-11	CERAMIC	0.1MF		50V
C604	1-162-179-11	CERAMIC	0.1MF		50V
C605	1-126-735-11	ELECT	33MF	20%	63V
C701 ⚠	1-161-744-00	CERAMIC	0.01MF		400V
C720 ⚠	1-161-744-00	CERAMIC	0.01MF		400V
C721 ⚠	1-161-744-00	CERAMIC	0.01MF		400V
C722 ⚠	1-161-744-00	CERAMIC	0.01MF		400V
C723 ⚠	1-161-744-00	CERAMIC	0.01MF		400V
C801	1-136-153-00	FILM	0.01MF	5%	50V
C802	1-136-153-00	FILM	0.01MF	5%	50V
C803	1-136-153-00	FILM	0.01MF	5%	50V
C804	1-136-153-00	FILM	0.01MF	5%	50V
C805	1-136-153-00	FILM	0.01MF	5%	50V
C806	1-136-153-00	FILM	0.01MF	5%	50V
C807	1-136-153-00	FILM	0.01MF	5%	50V
C808	1-136-153-00	FILM	0.01MF	5%	50V
C809	1-136-153-00	FILM	0.01MF	5%	50V
C810	1-136-153-00	FILM	0.01MF	5%	50V
C901	1-136-153-00	FILM	0.01MF	5%	50V
CN001	1-569-256-11	CONNECTOR (RECEPTACLE) (BALANCE OUT L)			
CN002	1-569-256-11	CONNECTOR (RECEPTACLE) (BALANCE OUT R)			
CN101	*1-564-511-11	PLUG, CONNECTOR 8P			
CN105	*1-564-508-11	PLUG, CONNECTOR 5P			
CN106	*1-564-509-11	PLUG, CONNECTOR 6P			
CN107	*1-564-510-11	PLUG, CONNECTOR 7P			
CN108	*1-564-509-11	PLUG, CONNECTOR 6P			
CN109	*1-564-510-11	PLUG, CONNECTOR 7P			
CN110	*1-564-506-11	PLUG, CONNECTOR 3P			
CN111	*1-564-509-11	PLUG, CONNECTOR 6P			
CN112	*1-564-510-11	PLUG, CONNECTOR 7P			
CN201	*1-564-509-11	PLUG, CONNECTOR 6P			
CN202	*1-564-508-11	PLUG, CONNECTOR 5P			
CN203	*1-564-511-11	PLUG, CONNECTOR 8P			
CN204	*1-564-506-11	PLUG, CONNECTOR 3P			
CN301	*1-564-506-11	PLUG, CONNECTOR 3P			
CN302	*1-564-506-11	PLUG, CONNECTOR 3P			
CN303	*1-564-507-11	PLUG, CONNECTOR 4P			
CN401	*1-564-506-11	PLUG, CONNECTOR 3P			
CN402	*1-564-506-11	PLUG, CONNECTOR 3P			
CN403	*1-564-507-11	PLUG, CONNECTOR 4P			
CN501	*1-564-510-11	PLUG, CONNECTOR 7P			
CN601	*1-564-509-11	PLUG, CONNECTOR 6P			
CN701	*1-564-519-11	PLUG, CONNECTOR 4P			
CN702	*1-564-519-11	PLUG, CONNECTOR 4P			
CN801	*1-564-522-11	PLUG, CONNECTOR 7P			
CN802	*1-564-521-11	PLUG, CONNECTOR 6P			
CN803	*1-564-518-11	PLUG, CONNECTOR 3P			
CN901	*1-564-518-11	PLUG, CONNECTOR 3P			
CN951	*1-564-510-11	PLUG, CONNECTOR 7P			
D101	8-719-123-78	DIODE 1SS97-2			
D102	8-719-123-78	DIODE 1SS97-2			
D103	8-719-912-20	DIODE 1SS120			
D104	8-719-912-20	DIODE 1SS120			
D105	8-719-912-20	DIODE 1SS120			
D106	8-719-912-20	DIODE 1SS120			
D108	8-719-123-78	DIODE 1SS97-2			
D109	8-719-200-02	DIODE 10E2			
D110	8-719-200-02	DIODE 10E2			
D111	8-719-200-02	DIODE 10E2			
D112	8-719-200-02	DIODE 10E2			
D113	8-719-912-20	DIODE 1SS120			
D114	8-719-912-20	DIODE 1SS120			
D202	8-719-123-78	DIODE 1SS97-2			
D203	8-719-901-59	DIODE KV1320			
D204	8-719-903-27	DIODE 1SS168			
D205	8-719-933-33	DIODE HZS6A1L			
D301	8-719-912-20	DIODE 1SS120			
D302	8-719-912-20	DIODE 1SS120			
D303	8-719-300-04	DIODE SV-04			
D304	8-719-912-20	DIODE 1SS120			
D305	8-719-912-20	DIODE 1SS120			
D401	8-719-912-20	DIODE 1SS120			
D402	8-719-912-20	DIODE 1SS120			
D403	8-719-300-04	DIODE SV-04			
D404	8-719-912-20	DIODE 1SS120			
D405	8-719-912-20	DIODE 1SS120			
D501	8-719-200-39	DIODE C16P20F			
D502	8-719-200-40	DIODE C16P20FR			
D503	8-719-200-39	DIODE C16P20F			
D504	8-719-911-55	DIODE U05G			
D505	8-719-911-55	DIODE U05G			
D507	8-719-931-07	DIODE EQB01-07			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
D508	8-719-931-07	DIODE EQB01-07
D801	8-719-302-07	DIODE SEL1810A
D802	8-719-302-07	DIODE SEL1810A
D803	8-719-302-07	DIODE SEL1810A
D804	8-719-302-07	DIODE SEL1810A
D805	8-719-302-07	DIODE SEL1810A
D806	8-719-302-07	DIODE SEL1810A
D807	8-719-302-07	DIODE SEL1810A
D808	8-719-303-02	DIODE SEL2510C-D
D809	8-719-303-02	DIODE SEL2510C-D
D810	8-719-303-02	DIODE SEL2510C-D
D901	8-719-303-02	DIODE SEL2510C-D
F701 ⚠	1-532-279-00	FUSE, TIME-LAG (T500MA)
F702 ⚠	1-532-066-00	FUSE, TIME-LAG (T400MA)
IC101	8-759-233-64	IC TC74HCU04AF
IC102	8-759-032-01	IC MC74HC00AF
IC103	8-759-994-60	IC CXD2900Q
IC104	8-752-328-61	IC CXD1244S
IC105	8-759-925-76	IC SN74HC08NS
IC106	8-759-232-32	IC TC74HC74AF
IC107	8-759-206-28	IC TC74HC123F
IC108	8-759-925-80	IC SN74HC14NS
IC109	8-759-032-01	IC MC74HC00AF
IC110	8-759-040-44	IC MC4044P
IC111	8-759-232-36	IC TC74HC76AF
IC112	8-759-233-26	IC TC74HC393AF
IC113	8-759-032-01	IC MC74HC00AF
IC114	8-759-925-76	IC SN74HC08NS
IC115	8-759-645-16	IC M54516P
IC116	8-759-645-16	IC M54516P
IC117	8-759-925-72	IC SN74HC02NS
IC118	8-759-032-01	IC MC74HC00AF
IC119	8-759-925-85	IC SN74HC32NS
IC120	8-759-971-80	IC AD712JN
IC121	8-759-982-21	IC RC78L05A
IC122	8-759-971-80	IC AD712JN
IC123	8-759-982-21	IC RC78L05A
IC124	8-752-334-77	IC CXD2553S
IC125	8-759-925-74	IC SN74HC04NS
IC126	8-759-604-29	IC M5F7805L
IC127	8-759-233-66	IC TC74HCT04AF
IC128	8-759-925-74	IC SN74HC04NS
IC129	8-759-925-85	IC SN74HC32NS
IC201	8-759-233-64	IC TC74HCU04AF
IC202	8-759-032-01	IC MC74HC00AF
IC203	8-759-242-57	IC TC74HC4020AF
IC204	8-759-013-39	IC MC4044M
IC205	8-759-242-57	IC TC74HC4020AF
IC206	8-759-971-80	IC AD712JN
IC207	8-759-634-55	IC M5F7805L-720
IC208	8-759-233-64	IC TC74HCU04AF
IC301	8-752-335-51	IC CXD2552Q-1
IC302	8-759-971-80	IC AD712JN
IC303	8-759-932-31	IC LF356H-K
IC304	8-759-971-80	IC AD712JN
IC306	8-719-902-56	DIODE PC817
IC307	8-719-902-56	DIODE PC817
IC308	8-719-902-56	DIODE PC817
IC309	8-719-902-56	DIODE PC817
IC310	8-719-902-56	DIODE PC817
IC401	8-752-335-51	IC CXD2552Q-1
IC402	8-759-971-80	IC AD712JN
IC403	8-759-932-31	IC LF356H-K
IC404	8-759-971-80	IC AD712JN
IC501	8-759-916-20	IC SN74HC14N
IC502	8-759-982-21	IC RC78L05A
IC503	8-759-982-21	IC RC78L05A
IC601	8-759-239-30	IC F4281
IC602	8-759-239-32	IC TORX173
IC603	8-759-239-32	IC TORX173
J101	1-568-918-41	JACK, PIN 1P (LINE OUT L)
J102	1-568-918-31	JACK, PIN 1P (LINE OUT R)
J103	1-568-918-21	JACK, PIN 1P (COAXIAL 1)
J104	1-568-918-21	JACK, PIN 1P (COAXIAL 2)
L101	1-408-113-00	INDUCTOR 4.7UH
L102	1-408-113-00	INDUCTOR 4.7UH
L103	1-408-912-11	INDUCTOR 1MMH
L104	1-408-113-00	INDUCTOR 4.7UH
L105	1-408-113-00	INDUCTOR 4.7UH
L106	1-408-113-00	INDUCTOR 4.7UH
L107	1-410-513-11	INDUCTOR 22UH
L108	1-410-324-11	INDUCTOR 4.7UH
L109	1-410-513-11	INDUCTOR 22UH
L110	1-410-513-11	INDUCTOR 22UH
L201	1-410-513-11	INDUCTOR 22UH
L202	1-460-042-11	COIL (WITH CORE)
L203	1-460-042-11	COIL (WITH CORE)
L204	1-408-096-00	INDUCTOR 470UH
L205	1-410-509-11	INDUCTOR 10UH
L206	1-410-509-11	INDUCTOR 10UH
L207	1-410-509-11	INDUCTOR 10UH
L208	1-410-509-11	INDUCTOR 10UH
L211	*1-410-858-11	INDUCTOR 0UH
L212	*1-410-858-11	INDUCTOR 0UH
L601	1-408-072-00	INDUCTOR 47UH
L602	1-408-072-00	INDUCTOR 47UH
L603	1-408-072-00	INDUCTOR 47UH
L720	1-424-404-11	COIL, LINE FILTER
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q102	8-729-107-53	TRANSISTOR 2SC2275A
Q103	8-729-107-53	TRANSISTOR 2SC2275A
Q201	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q202	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q203	8-729-200-56	TRANSISTOR 2SK241GR
Q204	8-729-200-56	TRANSISTOR 2SK241GR
Q205	8-729-900-61	TRANSISTOR DTA114ES
Q206	8-729-107-53	TRANSISTOR 2SC2275A
Q207	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q208	8-729-140-96	TRANSISTOR 2SD774-34
Q209	8-729-200-56	TRANSISTOR 2SK241GR
Q301	8-729-200-56	TRANSISTOR 2SK241GR
Q302	8-729-321-35	TRANSISTOR 2SK213
Q303	8-729-307-65	TRANSISTOR 2SJ76

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
Q305	8-729-140-96	TRANSISTOR 2SD774-34
Q306	8-729-140-96	TRANSISTOR 2SD774-34
Q310	8-729-201-05	TRANSISTOR 2SC2878B
Q401	8-729-200-56	TRANSISTOR 2SK241GR
Q402	8-729-321-35	TRANSISTOR 2SK213
Q403	8-729-307-65	TRANSISTOR 2SJ76
Q410	8-729-201-05	TRANSISTOR 2SC2878B
Q501	8-729-107-53	TRANSISTOR 2SC2275A
Q502	8-729-190-53	TRANSISTOR 2SA985A
Q503	8-729-104-91	TRANSISTOR 2SA1383-Q
Q504	8-729-104-91	TRANSISTOR 2SA1383-Q
Q505	8-729-104-18	TRANSISTOR 2SC3514-Q
Q506	8-729-104-18	TRANSISTOR 2SC3514-Q
Q507	8-729-104-18	TRANSISTOR 2SC3514-Q
Q508	8-729-104-18	TRANSISTOR 2SC3514-Q
Q509	8-729-104-91	TRANSISTOR 2SA1383-Q
Q510	8-729-104-91	TRANSISTOR 2SA1383-Q
Q511	8-729-238-32	TRANSISTOR 2SC2383
Q512	8-729-304-92	TRANSISTOR 2SB649A
Q513	8-729-304-92	TRANSISTOR 2SB649A
Q514	8-729-304-92	TRANSISTOR 2SB649A
Q515	8-729-238-32	TRANSISTOR 2SC2383
Q516	8-729-238-32	TRANSISTOR 2SC2383
Q517	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q518	8-729-801-82	TRANSISTOR 2SB1013-2
Q519	8-729-104-91	TRANSISTOR 2SA1383-Q
Q520	8-729-104-91	TRANSISTOR 2SA1383-Q
Q521	8-729-104-18	TRANSISTOR 2SC3514-Q
Q522	8-729-190-53	TRANSISTOR 2SA985A
Q523	8-729-190-53	TRANSISTOR 2SA985A
Q524	8-729-200-56	TRANSISTOR 2SK241GR
Q525	8-729-200-56	TRANSISTOR 2SK241GR
Q526	8-729-200-56	TRANSISTOR 2SK241GR
Q527	8-729-200-56	TRANSISTOR 2SK241GR
R001	1-259-401-11	CARBON 75 5% 1/6W
R002	1-259-401-11	CARBON 75 5% 1/6W
R101	1-259-428-11	CARBON 1K 5% 1/6W
R102	1-259-500-11	CARBON 1M 5% 1/6W
R103	1-259-420-11	CARBON 470 5% 1/6W
R104	1-259-428-11	CARBON 1K 5% 1/6W
R105	1-259-500-11	CARBON 1M 5% 1/6W
R106	1-259-420-11	CARBON 470 5% 1/6W
R107	1-259-416-11	CARBON 330 5% 1/6W
R108	1-259-416-11	CARBON 330 5% 1/6W
R109	1-259-416-11	CARBON 330 5% 1/6W
R110	1-259-420-11	CARBON 470 5% 1/6W
R111	1-259-420-11	CARBON 470 5% 1/6W
R112	1-259-459-11	CARBON 20K 5% 1/6W
R113	1-259-428-11	CARBON 1K 5% 1/6W
R114	1-259-436-11	CARBON 2.2K 5% 1/6W
R115	1-259-428-11	CARBON 1K 5% 1/6W
R116	1-259-420-11	CARBON 470 5% 1/6W
R117	1-259-420-11	CARBON 470 5% 1/6W
R118	1-259-420-11	CARBON 470 5% 1/6W
R119	1-259-460-11	CARBON 22K 5% 1/6W
R120	1-259-476-11	CARBON 100K 5% 1/6W
R121	1-259-452-11	CARBON 10K 5% 1/6W
R122	1-259-476-11	CARBON 100K 5% 1/6W

Ref.No.	Part No.	Description
R123	1-259-484-11	CARBON 220K 5% 1/6W
R124	1-259-492-11	CARBON 470K 5% 1/6W
R125	1-259-428-11	CARBON 1K 5% 1/6W
R126	1-259-452-11	CARBON 10K 5% 1/6W
R127	1-259-428-11	CARBON 1K 5% 1/6W
R128	1-259-426-11	CARBON 820 5% 1/6W
R129	1-259-428-11	CARBON 1K 5% 1/6W
R130	1-259-428-11	CARBON 1K 5% 1/6W
R131	1-259-444-11	CARBON 4.7K 5% 1/6W
R132	1-259-444-11	CARBON 4.7K 5% 1/6W
R133	1-259-456-11	CARBON 15K 5% 1/6W
R134	1-259-428-11	CARBON 1K 5% 1/6W
R135	1-259-428-11	CARBON 1K 5% 1/6W
R136	1-259-426-11	CARBON 820 5% 1/6W
R137	1-259-420-11	CARBON 470 5% 1/6W
R138	1-259-420-11	CARBON 470 5% 1/6W
R139	1-259-420-11	CARBON 470 5% 1/6W
R140	1-259-420-11	CARBON 470 5% 1/6W
R141	1-259-420-11	CARBON 470 5% 1/6W
R142	1-259-420-11	CARBON 470 5% 1/6W
R143	1-259-404-11	CARBON 100 5% 1/6W
R144	1-259-404-11	CARBON 100 5% 1/6W
R145	1-259-404-11	CARBON 100 5% 1/6W
R146	1-259-404-11	CARBON 100 5% 1/6W
R147	1-259-404-11	CARBON 100 5% 1/6W
R148	1-259-404-11	CARBON 100 5% 1/6W
R149	1-259-404-11	CARBON 100 5% 1/6W
R150	1-259-404-11	CARBON 100 5% 1/6W
R151	1-259-404-11	CARBON 100 5% 1/6W
R152	1-259-404-11	CARBON 100 5% 1/6W
R153	1-259-404-11	CARBON 100 5% 1/6W
R154	1-259-380-11	CARBON 10 5% 1/6W
R155	1-259-380-11	CARBON 10 5% 1/6W
R156	1-247-721-11	CARBON 4.7K 5% 1/4W
R157	1-247-721-11	CARBON 4.7K 5% 1/4W
R160	1-259-420-11	CARBON 470 5% 1/6W
R161	1-259-476-11	CARBON 100K 5% 1/6W
R162	1-259-476-11	CARBON 100K 5% 1/6W
R163	1-259-452-11	CARBON 10K 5% 1/6W
R201	1-247-713-11	CARBON 1K 5% 1/4W
R202	1-259-452-11	CARBON 10K 5% 1/6W
R203	1-259-452-11	CARBON 10K 5% 1/6W
R205	1-247-725-11	CARBON 10K 5% 1/4W
R206	1-259-452-11	CARBON 10K 5% 1/6W
R207	1-259-452-11	CARBON 10K 5% 1/6W
R208	1-247-721-11	CARBON 4.7K 5% 1/4W
R209	1-247-721-11	CARBON 4.7K 5% 1/4W
R210	1-249-460-11	CARBON 15K 5% 1/4W
R211	1-247-713-11	CARBON 1K 5% 1/4W
R212	1-247-713-11	CARBON 1K 5% 1/4W
R214	1-259-440-11	CARBON 3.3K 5% 1/6W
R215	1-259-392-11	CARBON 33 5% 1/6W
R216	1-259-416-11	CARBON 330 5% 1/6W
R217	1-259-468-11	CARBON 47K 5% 1/6W
R218	1-259-406-11	CARBON 120 5% 1/6W
R219	1-259-420-11	CARBON 470 5% 1/6W
R220	1-259-416-11	CARBON 330 5% 1/6W

Ref.No.	Part No.	Description			
R221	1-259-563-11	CARBON	2.2K	1%	1/2W
R222	1-259-692-11	CARBON	4.7K	2%	1W
R223	1-259-416-11	CARBON	330	5%	1/6W
R224	1-259-416-11	CARBON	330	5%	1/6W
R225	1-259-416-11	CARBON	330	5%	1/6W
R226	1-259-416-11	CARBON	330	5%	1/6W
R227	1-247-713-11	CARBON	1K	5%	1/4W
R228	1-246-545-00	CARBON	1M	5%	1/4W
R230	1-259-416-11	CARBON	330	5%	1/6W
R231	1-259-500-11	CARBON	1M	5%	1/6W
R232	1-259-412-11	CARBON	220	5%	1/6W
R240	1-259-579-11	CARBON	10K	1%	1/2W
R241	1-259-420-11	CARBON	470	5%	1/6W
R242	1-259-420-11	CARBON	470	5%	1/6W
R250	1-259-412-11	CARBON	220	5%	1/6W
R251	1-259-412-11	CARBON	220	5%	1/6W
R260	1-259-424-11	CARBON	680	5%	1/6W
R261	1-259-424-11	CARBON	680	5%	1/6W
R301	1-259-699-11	CARBON	9.1K	2%	1W
R302	1-259-699-11	CARBON	9.1K	2%	1W
R303	1-259-699-11	CARBON	9.1K	2%	1W
R304	1-259-699-11	CARBON	9.1K	2%	1W
R305	1-259-692-11	CARBON	4.7K	2%	1W
R306	1-259-692-11	CARBON	4.7K	2%	1W
R307	1-259-692-11	CARBON	4.7K	2%	1W
R308	1-259-692-11	CARBON	4.7K	2%	1W
R309	1-259-701-11	CARBON	11K	2%	1W
R310	1-259-701-11	CARBON	11K	2%	1W
R311	1-259-699-11	CARBON	9.1K	2%	1W
R312	1-259-699-11	CARBON	9.1K	2%	1W
R313	1-259-569-11	CARBON	3.9K	1%	1/2W
R314	1-259-627-11	CARBON	1M	1%	1/2W
R315	1-259-699-11	CARBON	9.1K	2%	1W
R316	1-259-569-11	CARBON	3.9K	1%	1/2W
R317	1-259-627-11	CARBON	1M	1%	1/2W
R318	1-259-699-11	CARBON	9.1K	2%	1W
R319	1-259-677-11	CARBON	1.1K	2%	1W
R320	1-259-684-11	CARBON	2.2K	2%	1W
R321	1-216-442-00	CARBON	39K	2%	1W
R322	1-259-652-11	CARBON	100	2%	1W
R323	1-259-730-11	CARBON	180K	2%	1W
R324	1-259-713-11	CARBON	36K	2%	1W
R325	1-259-689-11	CARBON	3.6K	2%	1W
R326	1-247-723-11	CARBON	6.8K	5%	1/4W
R327	1-249-596-11	CARBON	68K	5%	1/4W
R331	1-259-531-11	CARBON	100	1%	1/2W

Ref.No.	Part No.	Description			
R332	1-259-555-11	CARBON	1K	1%	1/2W
R333	1-259-640-11	CARBON	33	2%	1W
R334	1-259-640-11	CARBON	33	2%	1W
R335	1-259-652-11	CARBON	100	2%	1W
R336	1-247-719-11	CARBON	3.3K	5%	1/4W
R338	1-249-794-11	CARBON	470	1%	1/2W
R340	1-249-504-11	CARBON	10	5%	1/4W
R350	1-259-615-11	CARBON	330K		1/2W
R401	1-259-699-11	CARBON	9.1K	2%	1W
R402	1-259-699-11	CARBON	9.1K	2%	1W
R403	1-259-699-11	CARBON	9.1K	2%	1W
R404	1-259-699-11	CARBON	9.1K	2%	1W
R405	1-259-692-11	CARBON	4.7K	2%	1W
R406	1-259-692-11	CARBON	4.7K	2%	1W
R407	1-259-692-11	CARBON	4.7K	2%	1W
R408	1-259-692-11	CARBON	4.7K	2%	1W
R409	1-259-701-11	CARBON	11K	2%	1W
R410	1-259-701-11	CARBON	11K	2%	1W
R411	1-259-699-11	CARBON	9.1K	2%	1W
R412	1-259-699-11	CARBON	9.1K	2%	1W
R413	1-259-569-11	CARBON	3.9K	1%	1/2W
R414	1-259-627-11	CARBON	1M	1%	1/2W
R415	1-259-699-11	CARBON	9.1K	2%	1W
R416	1-259-569-11	CARBON	3.9K	1%	1/2W
R417	1-259-627-11	CARBON	1M	1%	1/2W
R418	1-259-699-11	CARBON	9.1K	2%	1W
R419	1-259-677-11	CARBON	1.1K	2%	1W
R420	1-259-684-11	CARBON	2.2K	2%	1W
R421	1-216-442-00	CARBON	39K	2%	1W
R422	1-259-652-11	CARBON	100	2%	1W
R423	1-259-730-11	CARBON	180K	2%	1W
R424	1-259-713-11	CARBON	36K	2%	1W
R425	1-259-689-11	CARBON	3.6K	2%	1W
R426	1-247-723-11	CARBON	6.8K	5%	1/4W
R427	1-249-596-11	CARBON	68K	5%	1/4W
R431	1-259-531-11	CARBON	100	1%	1/2W
R432	1-259-555-11	CARBON	1K	1%	1/2W
R433	1-259-640-11	CARBON	33	2%	1W
R434	1-259-640-11	CARBON	33	2%	1W
R435	1-259-652-11	CARBON	100	2%	1W
R436	1-247-719-11	CARBON	3.3K	5%	1/4W
R437	1-249-794-11	CARBON	470	1%	1/2W
R438	1-249-794-11	CARBON	470	1%	1/2W
R440	1-249-504-11	CARBON	10	5%	1/4W
R450	1-259-615-11	CARBON	330K		1/2W
R501 ⚠	1-212-976-00	FUSIBLE	56	5%	1/2W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
R502	1-259-601-11	CARBON	82K	1%	1/2W
R503	1-259-547-11	CARBON	470	1%	1/2W
R504	1-259-582-11	CARBON	13K	1%	1/2W
R505	1-259-579-11	CARBON	10K	1%	1/2W
R506	1-259-617-11	CARBON	390K	1%	1/2W
R507	1-259-612-11	CARBON	240K	1%	1/2W
R508 ⚠	1-219-006-11	FUSIBLE	22	5%	1/2W
R509	1-259-563-11	CARBON	2.2K	1%	1/2W
R510	1-259-563-11	CARBON	2.2K	1%	1/2W
R511	1-259-571-11	CARBON	4.7K	1%	1/2W
R512	1-259-571-11	CARBON	4.7K	1%	1/2W
R513	1-259-525-11	CARBON	56	1%	1/2W
R514	1-259-525-11	CARBON	56	1%	1/2W
R515	1-259-555-11	CARBON	1K	1%	1/2W
R516	1-259-555-11	CARBON	1K	1%	1/2W
R517	1-259-579-11	CARBON	10K	1%	1/2W
R518	1-259-555-11	CARBON	1K	1%	1/2W
R519	1-259-579-11	CARBON	10K	1%	1/2W
R520	1-259-555-11	CARBON	1K	1%	1/2W
R521	1-259-559-11	CARBON	1.5K	1%	1/2W
R522	1-259-559-11	CARBON	1.5K	1%	1/2W
R523	1-259-565-11	CARBON	2.7K	1%	1/2W
R524	1-259-565-11	CARBON	2.7K	1%	1/2W
R525	1-259-541-11	CARBON	270	1%	1/2W
R526	1-259-565-11	CARBON	2.7K	1%	1/2W
R527	1-259-531-11	CARBON	100	1%	1/2W
R528	1-259-541-11	CARBON	270	1%	1/2W
R529	1-259-565-11	CARBON	2.7K	1%	1/2W
R530	1-259-531-11	CARBON	100	1%	1/2W
R531	1-259-676-11	CARBON	1K	2%	1W
R532	1-259-677-11	CARBON	1.1K	2%	1W
R533	1-259-676-11	CARBON	1K	2%	1W
R534	1-259-677-11	CARBON	1.1K	2%	1W
R535	1-259-531-11	CARBON	100	1%	1/2W
R536	1-259-531-11	CARBON	100	1%	1/2W
R537	1-259-531-11	CARBON	100	1%	1/2W
R538	1-259-531-11	CARBON	100	1%	1/2W
R539	1-259-551-11	CARBON	680	1%	1/2W
R540	1-259-551-11	CARBON	680	1%	1/2W
R541	1-259-551-11	CARBON	680	1%	1/2W
R542	1-259-551-11	CARBON	680	1%	1/2W
R543	1-259-571-11	CARBON	4.7K	1%	1/2W
R544	1-259-579-11	CARBON	10K	1%	1/2W
R545	1-259-543-11	CARBON	330	1%	1/2W
R546	1-259-531-11	CARBON	100	1%	1/2W
R547	1-212-958-00	CARBON	10	1%	1/2W

Ref.No.	Part No.	Description			
R548	1-259-555-11	CARBON	1K	1%	1/2W
R549	1-217-158-00	RES,METAL PLATE 0.47			
R550	1-217-158-00	RES,METAL PLATE 0.47			
R551	1-217-158-00	RES,METAL PLATE 0.47			
R552	1-217-158-00	RES,METAL PLATE 0.47			
R602	1-259-416-11	CARBON	330	5%	1/6W
R603	1-259-416-11	CARBON	330	5%	1/6W
R604	1-259-416-11	CARBON	330	5%	1/6W
R701	1-259-644-11	CARBON	47	2%	1W
R702	1-259-644-11	CARBON	47	2%	1W
R703	1-259-680-11	CARBON	1.5K	2%	1W
R704	1-259-644-11	CARBON	47	2%	1W
R705	1-259-644-11	CARBON	47	2%	1W
R706	1-259-680-11	CARBON	1.5K	2%	1W
R951	1-247-717-11	CARBON	2.2K	5%	1/4W
R952	1-247-717-11	CARBON	2.2K	5%	1/4W
R953	1-247-717-11	CARBON	2.2K	5%	1/4W
R954	1-247-717-11	CARBON	2.2K	5%	1/4W
R955	1-247-717-11	CARBON	2.2K	5%	1/4W
RSW951	1-572-187-11	SWITCH, ROTARY (DIGITAL INPUT)			
RV601	1-224-252-XX	RES, ADJ, METAL GLAZE 10K			
RY301	1-515-726-11	RELAY			
RY302	1-515-726-11	RELAY			
RY304	1-515-726-11	RELAY			
RY401	1-515-726-11	RELAY			
RY402	1-515-726-11	RELAY			
RY404	1-515-726-11	RELAY			
SSW901	1-571-083-31	SWITCH, SLIDE (BALANCE OUT)			
SW701 ⚠	1-554-538-00	SWITCH, PUSH (AC POWER)(1 KEY)			
T101 ⚠	1-449-427-11	TRANSFORMER, POWER			
T102 ⚠	1-450-196-11	TRANSFORMER, POWER			
T301	1-424-328-11	TRANSFORMER, LINE			
T401	1-424-328-11	TRANSFORMER, LINE			
X101	1-577-269-11	VIBRATOR, CRYSTAL (18.432MHz)			
X102	1-466-262-11	MODULE, VCXO			
X201	1-577-686-11	VIBRATOR, CRYSTAL			

ACCESSORY & PACKING MATERIAL

1-558-271-11	CORD, CONNECTION
1-558-378-11	CORD, CONNECTION
3-751-250-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH,GERMAN,ITALIAN)
*3-703-710-41	STICKER, SONY SYMBOL (12)
4-362-304-00	GUARD, PLUG
*4-924-262-01	CUSHION
*4-941-349-01	INDIVIDUAL CARTON

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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